



Surveillance of dengue fever virus: A review of epidemiological models and early warning systems

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Abstract:

Dengue fever affects over a 100 million people annually hence is one of the world's most important vector-borne diseases. The transmission area of this disease continues to expand due to many direct and indirect factors linked to urban sprawl, increased travel and global warming. Current preventative measures include mosquito control programs, yet due to the complex nature of the disease and the increased importation risk along with the lack of efficient prophylactic measures, successful disease control and elimination is not realistic in the foreseeable future. Epidemiological models attempt to predict future outbreaks using information on the risk factors of the disease. Through a systematic literature review, this paper aims at analyzing the different modeling methods and their outputs in terms of acting as an early warning system. We found that many previous studies have not sufficiently accounted for the spatio-temporal features of the disease in the modeling process. Yet with advances in technology, the ability to incorporate such information as well as the socio-environmental aspect allowed for its use as an early warning system, albeit limited geographically to a local scale.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3358322>

Resource Description

Early Warning System: ☒

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure : ☒

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Meteorological Factors, Precipitation, Temperature

Temperature: Fluctuations

Geographic Feature: ☒

resource focuses on specific type of geography

None or Unspecified

Climate Change and Human Health Literature Portal

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease

Infectious Disease: Vectorborne Disease

Vectorborne Disease: Mosquito-borne Disease

Mosquito-borne Disease: Dengue

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Exposure Change Prediction, Outcome Change Prediction

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Short-Term (

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content